Amendments to the Specifications:

Please replace paragraph [0036] with the following amended paragraph:

[0036] In the optical frequency local oscillation portion 32, oscillation is performed by use of an oscillating light source having an optical frequency fl, and the signal is multiplexed with an optical signal emitted from the optical frequency modulation portion 22 by the optical multiplexer 23. The DFB-LD can be used as the oscillating light source of the optical frequency local oscillation portion 32. The two optical signals multiplexed by the optical multiplexer 23 are subjected to heterodyne detection by the optical detector ~~23~~ 24. A photodiode that functions as a heterodyne detector can be used as the optical detector. The frequency f of the electric signal subjected to heterodyne detection by the optical detector 24 is calculated from Equation (2) mentioned above. In Equation (2), the modulated signal is a signal having a frequency fs. Herein, if the optical frequency of the carrier light source of the optical frequency modulation portion 22 and the optical frequency of the oscillating light source of the local oscillation portion 32 are caused to come close to each other, it is possible to obtain an electric signal in which frequency is modulated to have an intermediate frequency fi=fo-fl of several GHz and have a frequency deviation δf as shown in Fig. 2B.

Please replace paragraph [0045] with the following amended paragraph:

[0045] Outputs emitted from the optical frequency modulation portions 22-1 and 22-2 are multiplexed by the optical multiplexer 23, and the two optical signals multiplexed by the optical multiplexer 23 are subjected to heterodyne detection by the optical detector ~~23~~ 24. A photodiode that functions as a heterodyne detector can be used as the optical detector. The frequency f of the electric signal subjected to heterodyne detection by the optical detector 24 is expressed as a frequency equal to a difference between the values shown in Equations (10) and (11) as follows:

$$f = fo1 - fo2 + \delta f \cdot \sin(2\pi \cdot fs \cdot t) \qquad (12)$$

In Equation (12), the modulated signal is a signal having a frequency fs. Herein, if the optical frequency of the carrier light source of the optical frequency modulation portion 22-1 and the optical frequency of the carrier light source of the optical frequency modulation portion 22-2 are caused to come close to each other, it is possible to obtain an electric signal in which frequency is modulated to have an intermediate frequency fi=fo-fl of several GHz and have a frequency deviation δf as shown in Fig. 2B.

Please replace paragraph [0053] with the following amended paragraph:

[0053] In the FM batch conversion circuit 12, a frequency-multiplexed video signal, such as that shown in Fig. 2A, is subjected to frequency modulation with a frequency fo as the center frequency in the voltage-controlled oscillator 26, and a frequency fv of an electric signal that has been output is expressed as follows when the frequency deviation is ~~δd~~ <u>δf</u>:

$$fv=fo+\delta f \cdot \sin(2\pi \cdot fs \cdot t) \qquad (13)$$

Thus, a frequency-modulated signal is obtained which has an intermediate frequency fi=fo and a frequency deviation δf. In Equation (13), the modulated signal is a signal having a frequency fs.

Please replace paragraph [0082] with the following amended paragraph:

[0082] The other output of the distribution circuit 11 is distributed by the differential distributor 21-2 into two electric signals in which phases have been inverted. The optical frequency Ffmld3 of the output light emitted from the optical frequency modulation portion 22-3 is subjected to frequency modulation by one of the two electric signals emitted from the differential distributor 21-2, and thereby a frequency-modulated optical signal is output. The optical frequency Ffmld4 of the output light emitted from the optical frequency modulation portion ~~22-2~~ <u>22-4</u> is subjected to frequency modulation by the other one of the two electric signals emitted from the differential distributor ~~21-4~~ <u>21-2</u>, and thereby a frequency-modulated optical signal is output. The frequency-modulated optical signal emitted from the optical frequency modulation portion 22-3 and the frequency-modulated optical signal emitted from the optical frequency modulation portion 22-4 are set so that a difference in the optical center frequency becomes substantially equal to an intermediate frequency and so that coincidence of the polarization direction is achieved, are then multiplexed by the optical multiplexer 25-2, and are turned into a second optical signal.